

IMPORTANT PRODUCT INFORMATION

READ THIS INFORMATION FIRST

Product: Host Communications Software

IC641SWP058F -Toolkit for Windows [®] 32-bit Windows C/C++ Applications	HCT Version 2.11 Sample C Programs, Version 1.04 Release diskette 2.11
IC641SWP080D -Host Drivers for Windows 95/NT (qty. 1) IC641SWP081D -Host Drivers for Windows 95/NT (qty. 10)	TCP/IP Ethernet driver, Version 1.29 TCP/SLIP driver, Version 1.29 SNP driver, Version 1.19 Release diskette 1.11

The Host Communications Toolkit (HCT) software provides a means to communicate to an IC697 PLC through its Ethernet Interface (IC697CMM741 or IC697CMM742) or to an IC693 PLC through its Ethernet Interface (IC693CMM321). The Host Communications software can be used to develop applications which run on a PC running Microsoft[®] Windows[®] 95 or Windows NT[®]. The Host Communications software also supports applications development on a PC running Microsoft Windows for Workgroups, an HP-UX 9000 workstation, a DEC VAX/VMS[™] workstation, or a DEC Alpha AXP/VMS[™] workstation; however, this release only updates the software for the Windows NT and Windows 95 platforms. The host-to-PLC communications uses TCP/IP (Transmission Control Protocol and Internet Protocol) across an Ethernet Local Area Network (LAN) or SNP protocol over a serial line.

New For This Release

This product release introduces the ability of the HCT to support Microsoft Visual C++. The product has been modified to provide sample projects that have been developed with Visual C++ 5.0. This includes all new .dsp files and all new executables that have been written for Visual C++ 5.0.

General Description of Host Communications Software Products

- *Toolkit for Windows 95/NT C/C++ Applications* (IC641SWP058) is a runtime toolkit which allows Microsoft Windows NT user-written C or C++ applications to access data from IC697, IC693, IC692 and Micro PLCs. This catalog number requires and includes one copy of the *Host Drivers for Windows 95/NT* (IC641SWP080).
- *Host Drivers for Windows 95/NT* (quantity one -IC641SWP080, quantity ten -IC641SWP081) contains an interface between the TCP/IP or SNP communications software below and the *Toolkit for Windows 95/NT C/C++ Applications* (IC641SWP058) above. The IC641SWP080 catalog number includes one runtime license. The IC641SWP081 catalog number includes ten runtime licenses. The IC641SWP081 product is provided as a convenience to users requiring use of the Host software on multiple platforms.

Compatibility

The following table lists host PC requirements.

PC RAM	Windows 95 - 16MB minimum, 32MB or more recommended Windows NT - 16MB minimum, 32MB or more recommended Note: The minimum RAM requirements support up to four simultaneous HCT sessions. At least 32MB are required to support more simultaneous sessions.
PC hard disk	4MB available minimum, 10MB or more recommended
PC processor	For Windows NT, Intel 80486 or higher (Pentium recommended) For Windows 95, Intel 80486 or higher (Pentium recommended)

The following table shows the earliest versions of Series 90 PLC products that are compatible with this version of the HCT.

System Component	TCP/IP without Unsolicited Messages	TCP/IP with Unsolicited Messages	SNP
IC697 PLCs¹			
PLC CPU firmware	4.12	4.12 for IC697CMM741 6.00 for IC697CMM742	4.12 6.00 for multisession
TCP/IP Ethernet Controller (IC697CMM741)	PROM 1.15 RAM 1.28	PROM 2.00 RAM 2.10	N/A
(IC697CMM742) Type 2	2.60 ^{1,2}	2.60 ^{1,2}	N/A
(IC697CMM711)	N/A	N/A	1.00 (4.00 for multisession) ³
IC693 PLCs¹			
PLC CPU firmware	6.51 (6.52 for CPU 351)	6.51 (6.52 for CPU 351)	6.51 (6.52 for CPU 351)
TCP/IP Ethernet Controller (IC693CMM321)	1.10	2.00	N/A
(IC693CMM311)	N/A	N/A	1.00 (4.00 for multisession) ³
IC692 PLCs			
PLC CPU firmware	N/A	N/A	5.02
Micro PLC			
PLC CPU firmware	N/A	N/A	2.00

Notes:

1. Ethernet Global Data is only supported by high end IC697 CPUs Release 7.0 or higher with an IC698CMM742 Release 2.6 or higher in the rack. In order to define exchanges in the PLC, you must have Windows-based programming software (IC641CTL970 or IC641CTL971).
2. IC697CMM742 must be revision ED or higher which requires firmware version 2.60.
3. See the discussion of the MULTISESS configuration parameter in the Special Operational Notes section.

Toolkit Programming Languages and Host Operating System Requirements

The HCT runs on various platforms. The table below shows the specific programming languages that can be used to write HCT applications on a particular platform as well as the host operating system requirements.

Platform	Programming Language	Operating System Requirements
Microsoft Windows 95	Microsoft 32bit Visual C/C++ compiler 5.00 or later	Windows 95
Microsoft Windows NT	Microsoft 32bit Visual C/C++ compiler 5.00 or later	Windows NT 4.0 with service pack 3 or later
Microsoft Windows	Microsoft C 7.0, Microsoft Visual C++ 1.00 or later., or Visual Basic 3.00 or later	Windows for Workgroups v3.11
HPUX	Native “cc” compiler	HPUX v9.0 with Berkley sockets
DEC VAX/VMS	VAX C compiler	VMS 5.52, DEC TCP/IP for Open VMS v3.2
DEC Alpha AXP/VMS	Alpha C compiler (CC), version 4.1 or Alpha C/C++ compiler (CXX), version 1.3	VMS 6.0, DEC TCP/IP for Open VMS v3.2 or TCPware for Open VMS v4.1

Product Documentation

Catalog Number	Platform	Documentation
IC641SWP058	Microsoft Windows 95/NT	<i>Host Communications Toolkit for C/C++ Applications User’s Manual</i> , GFK0870 <i>Host Drivers and Communication Configuration Software for Windows Environments User’s Manual</i> , GFK4026
IC641SWP080 IC641SWP081	Microsoft Windows 95/NT	<i>Host Drivers and Communication Configuration Software for Windows Environments User’s Manual</i> , GFK4026

Changes and Additions to the Documentation

Host Communications Toolkit for C/C++ Applications, *GFK-0870D*:

Release 2.11 of Host Communications Toolkit can not be used with the Windows NT 3.51 operating system. Remove all references that state that Windows NT 3.51 is supported (Chapter 2).

Release 2.11 of Host Communications Toolkit requires Visual C++ release 5.0 or greater. Remove all references that state that Visual C++ 4.1 or 4.2 are supported (Chapter 2).

Note: This release does not apply to Windows for Workgroups.

Operational Notes

Runtime License Required per System

Each Toolkit comes with a Runtime License. This license is the standard license required to use GE Fanuc software products (GFK0317), much like the license Microsoft requires to use Word for Windows on a PC. The

Runtime License included with the Toolkit allows the user to run the Host Driver software on a single machine only.

For the Windows 95/NT environment, the user wanting multiple PCs to run this software may purchase IC641SWP080 to get Host Driver support software and a Runtime License (GFJ0317) for a single machine, or IC641SWP081 to purchase ten Runtime Licenses and software.

For the Windows environment, the user wanting multiple PCs to run this software may purchase IC641SWP050 to get the Host Driver support software and a Runtime License (GFJ0317) for a single machine, or IC641SWP051 to purchase ten Runtime Licenses and software.

GFJ-0317 is required for each Windows 95 or Windows NT PC where an HCT application is used for which IC641SWP058 was not purchased. Your Windows 95 or Windows NT application will also need the files GEFHCT32.DLL and HCTPXYIF.DLL (in addition to IC641SWP080) to operate on a PC other than your development PC (where IC641SWP058 was installed). You may copy these two DLLs royalty free with your HCT executable after installing IC641SWP080.

Catalog Number	Platform	User's Manual	Hours of Telephone Support	Runtime License Included
IC641SWP058	Microsoft Windows 95/NT	GFK0870, GFK4026+	10	GFJ0317+
IC641SWP052	Microsoft Windows	GFK0870, GFK4026*	10	GFJ0317*
IC641SWP055	Microsoft Windows	GFK4063, GFK4026*	5	GFJ0317*
IC641SWP080	Microsoft Windows 95/NT	GFK4026	N/A	GFJ0317
IC641SWP081	Microsoft Windows 95/NT	GFK4026	N/A	Ten copies of GFJ0317
IC641SWP050	Microsoft Windows	GFK4026	N/A	GFJ0317
IC641SWP051	Microsoft Windows	GFK4026	N/A	Ten copies of GFJ0317

+ part of IC641SWP080, which is included in this catalog number

* part of IC641SWP050, which is included in this catalog number

Special Operational Notes

CAUTION: HCT Application Causes IC697 PLC Failure

If an HCT application attempts to write into %L memory using a block name that does not represent a ladder subprogram block (such as an EXE block), this could result in PLC CPU failure. This problem has been corrected in release 6.00 CPU firmware. HP-UX 9000 and DEC/VMS HCT users may now use the new “mask” field within the PBLOCK_LIST structure (see GFK0870D, Chapter 3) to differentiate between blocks that can support %L and those that cannot.

The following code segment shows how to use this new field.

```
#include "gef_hct.h"
PBLOCK_LIST BlockList;
...
/* Just got response from request to get list */
/* of program blocks */
for( i=0; i < 256; i++ )
{
    if( (BlockList.block_info[i].mask & HCT_NOLOCALDATA) == 0 )
    {
        <OK to read %L memory>
    }
    else
    {
        <this is a EXE/PSB/SFC block without %L data>
    }
} /* END_for */
```

IC697 PLC CPUs Limit Amount of Memlist Data

When using the HCT or Host Driver software to communicate with a IC697 PLC CPU, each CPU has restrictions to the amount of data in an HCT memlist. The maximum for the IC697 PLC CPU is the lesser of 256 points or 2,048 bytes in a list. Older IC693 PLC CPUs had a maximum of 256 bytes of data (regardless of the number of points) being returned in a single memlist. IC693 CPU firmware version 6.50 and later expands this to the IC697 limits. This release of the HCT software will return an error message to the HCT user before sending any messages to the PLC CPU if the memlist data exceeds 256 bytes and the IC693 CPU cannot handle more. If the IC693 CPU is upgraded at a later time, this same HCT software will expand the amount of memlist data allowed by recognizing the more capable CPU firmware.

Use of the MULTISESS Parameter with SNP Sessions

With this release comes an SNP Host Driver and associated configuration parameters for this driver. The MULTISESS configuration parameter may be seen with the Communication Configuration Utility (CCU) and has a value of either YES or NO. YES enables the SNP Host Driver to use either multiple SNP sessions through a single COM port to the same PLC CPU or not, depending on the capability of the target PLC CPU. NO disables this automatic sensing by the SNP Host Driver, which forces only one SNP session through that COM port at a time. The only reason to use this parameter is when connecting to a PLC CPU through either an IC697CMM711

prior to version 4.00 or through an IC693CMM311 prior to version 4.00. If you use the CPU builtin port, or if you use version 4.00 of the CMM711 or CMM311 firmware, this parameter need not be used.

Break Signal

Current GE Fanuc PLCs require a break signal to begin the serial communications process using the SNP protocol. The modems used with HCT, for SNP communication, must be able to pass the break. Two modems have been tested with HCT: Practical Peripherals Modem 288MTII and BOCA Modem 14400.

Open Problems - Windows 95/Windows NT

This section describes known limitations to the Microsoft Windows 95/Windows NT Host Communications software (IC641SWP058, IC641SWP080, IC641SWP081).

Subject	ID Code	Description
Multi-threaded applications not supported	54326, 54929	The HCT cannot support an application using multiple threads that involve HCT calls.
CIMPLICITY HMI uninstalls EGDSERVICE which is used by the HCT	66004	When CIMPLICITY HMI is removed from the computer, it uninstalls the egdservice. If HCT is also installed on the machine, it is no longer able to use EGD. The service must be manually re-installed in order for HCT to be able to use EGD again. In order to do this, go to the Windows root directory containing egdservice.exe and execute the following command: <code>egdservice -i</code> HCT will once again be able to use EGD.
HCT "Un-Listens" are not cleaning up the connection.	67869	This problem was observed under the following conditions: [1] Call HCT_listen() 32 times with the Listen_Enable parameter set to HCT_ENABLE_LISTEN. [2] Call HCT_listen() 32 times with the Listen_Enable parameter set to HCT_DISABLE_LISTEN. [3] Perform steps #1 and #2 a total of three (3) times. On the third time through the steps, after 64 HCT_listen()'s have already been performed, all 32 HCT_listen()'s failed with HCT_SRX_ERROR(-12). A subsequent call to HCTGetSRXError() returned a value of 0. This will be fixed in a subsequent release.

Problems Corrected in This Release

This section describes the software defects that have been corrected since the last release of the HCT.

Subject	ID Code	Description
OLE Server not found		This problem was reported by one of our customers, when they tried using the toolkit with Visual C++ Version 5.0. This release fixes that.